



PRESENTATION ON

**A study of prevalence of medication error and effect of
targeted intervention on reduction of medication error in
Monilek Hospital and Research Centre**

SUBMITTED BY:-
LAKASHITA
0438
HOSPITAL STREAM

GUIDED BY:
Dr. TANJUL SAXENA
ASSOCIATE PROFESSOR

INTRODUCTION

Medication error has been defined as “any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of health care professional, patient or consumer.

Medication errors can have undesirable consequences for patients such as:

- Increased length of hospitalization
- Increased costs of hospitalization
- Disability and distrust in the healthcare system
- Severe injury or even patient death

- MEs are common in hospitalized patients at a rate of 5 per 100 medication prescriptions or 1.4 per admission.
- There are 2000 death every year from unnecessary surgery.
- 7000 death from medication error in hospitals
- 20000 death from other reasons in hospitals
- 80000 death from infection in hospital
- 106000 deaths every year from error, adverse effects of medication
- Nearly 98,000 people die because of mistakes committed by medical professionals in hospitals

Source Reddy L.K V, A.G Modi Chaudhary, V Modi, M . Patel medication error- A case study, 2010, page 112, vol:7journal 2

- A prescription error can be defined as ‘a failure in the prescription writing process that results in a wrong instruction about one or more of the normal features of a prescription’. The ‘normal features’ include the identity of the recipient, the identity of the drug, the formulation and dose, and the route, timing, frequency and duration of administration
- The prescription of drugs is the most common form of error that occur in the prescribing process and have the potential to cause significant morbidity and mortality.

Source:-Carlton G, Blegen M. A. Medication-related errors: A literature review of incidence and antecedents. Nursing Research. 2006; 24:19–38

- One third of 61 patients were found to have prescribing error occurring at hospital admission in USA
- One in eight patient in UK
- In Netherland valuating medication error in elderly patients is 21% of 100 patients

Source:-Kay seden, Jamie j Kirkham cross-sectional study of prescribing error in patients admitted to nine hospital across north west England

SOURCES OF MEDICATION ERROR

- Inaccurate recording and transcribing order
- Confusion in LASA drugs
- Misidentification of patients.
- Incomplete delivery of drugs
- Use of inadequate knowledge or inaccurate knowledge base
- Time and performance pressure
- Miscommunication between physician, patient and other paramedical staff
- Illegible handwriting
- Incomplete documentation

CLASSIFICATION OF MEDICATION ERROR

Medication error may also be classified according to where they occur in the medication use cycle

- At the stage of prescribing
- Dispensing
- Administration of a drug.

RESEARCH QUESTION

What is the prevalence of medication error and what are the effect of targeted intervention on reduction of medication error in Monilek Hospital and Research Centre

OBJECTIVE

- To measure the percentage of Non-compliance in Medication error in IPD and OPD
- To investigate if certain targeted interventions result in reduction of medication errors
- To develop the solutions to reduce and/or to prevent medication error in hospital under study.

HYPOTHESIS

H_0 (IPD) = There is no significant difference between proportion of non-compliance before and after targeted intervention in IPD ($p_1 = p_2$ where p_1 is proportion before intervention and p_2 is proportion after intervention)

H_1 (IPD) = There is significant difference between proportion of non-compliance before and after targeted intervention in IPD ($p_1 \neq p_2$ where p_1 is proportion before intervention and p_2 is proportion after intervention)

H_0 (OPD) = There is no significant difference between proportion of non-compliance before and after targeted intervention in OPD ($p_1 = p_2$ where p_1 is proportion before intervention and p_2 is proportion after intervention)

H_1 (OPD) = There is significant difference between proportion of non-compliance before and after targeted intervention in OPD ($p_1 \neq p_2$ where p_1 is proportion before intervention and p_2 is proportion after intervention)

METHODOLOGY

Type of study: -Descriptive and Quasi experimental (Pre and Post Intervention Independent sample study)

Sampling procedure:-Convenient sampling method

Sample size:1200 records

Study duration:-1 Feb-5 May, 2018

Data source:-Medication chart of IPD and prescription of OPD

Exclusion criteria: -Emergency patients and ICU

PRE INTERVENTION	INTERVENTIONS	POST INTERVENTION
1st Feb -13th March Total IPD records:-300 All IPD files available in the IPD on all working days till 300 records collected.	➤ 14th March- 31th March ➤ Regular meeting with Medical Director was conducted ➤ Doctors were sensitized continuously to avoid medication error. ➤ Nurses were trained to report more of medication error ➤ Nurses was sensitized continuously to complete the documentation ➤ Regular audits of medication error was done ➤ RMOs were sensitized to use block letter in medication chart.	1st April – 5th May Total IPD records:-300 All IPD files available in the IPD on all working days till 300 records collected.
Total OPD Prescriptions :-300 All OPD prescriptions available in the OPD on all working days till 300 prescriptions collected	➤ Doctors were sensitized continuously for proper documentation of OPD prescription ➤ Regular audits of medication error was done	Total OPD Prescriptions :-300 All OPD prescriptions available in the OPD on all working days till 300 prescriptions collected

Data collection tool:-

Primary data was collected with the help of structured checklist enumerating different types of medication errors namely,

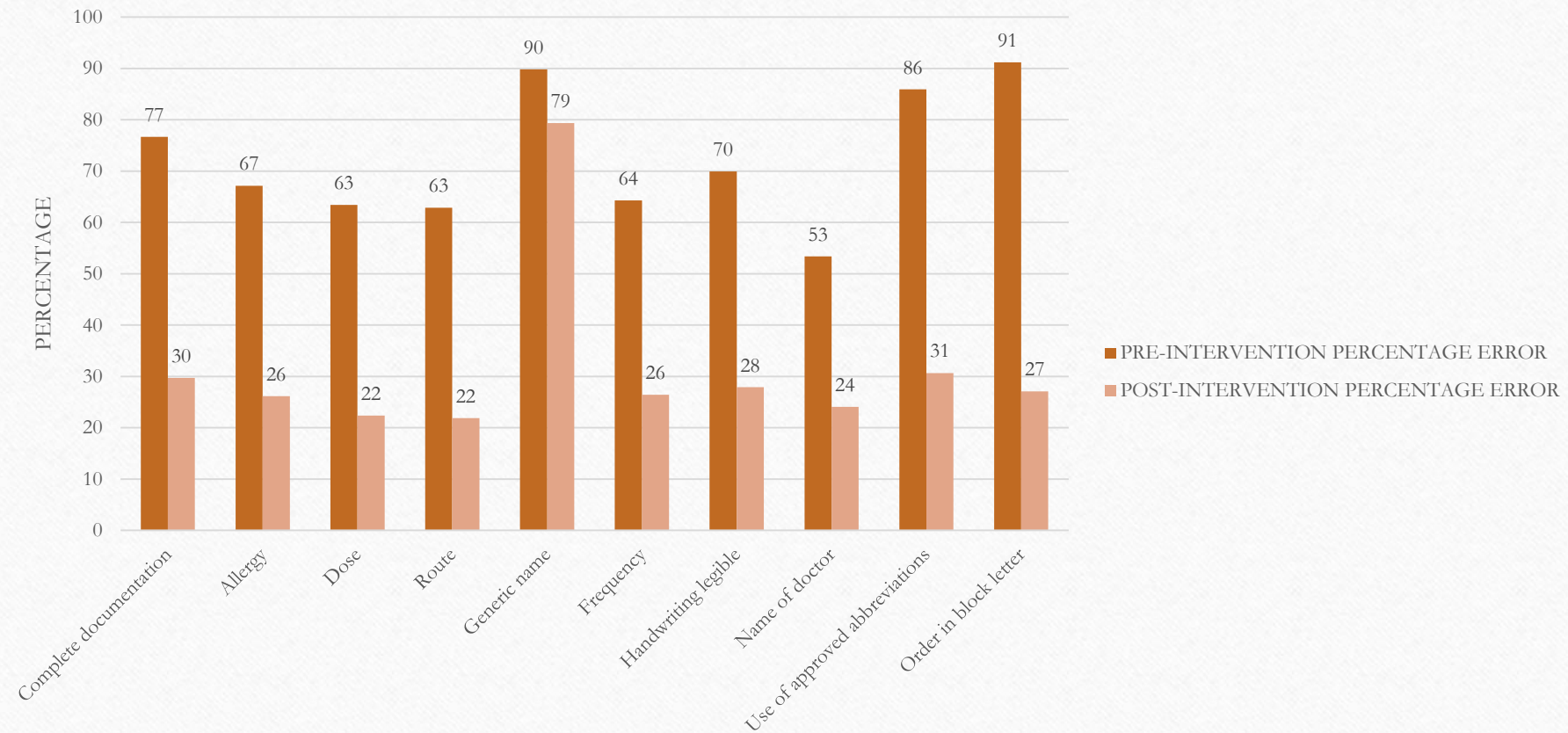
- Complete documentation
- Allergy
- Dose
- Route
- Generic name
- Frequency
- Duration of medication
- Handwriting legible
- Name of doctor
- Use of approved abbreviations
- Order in block letter

The scoring pattern for the analysis used is
1=compliance 0= non compliance

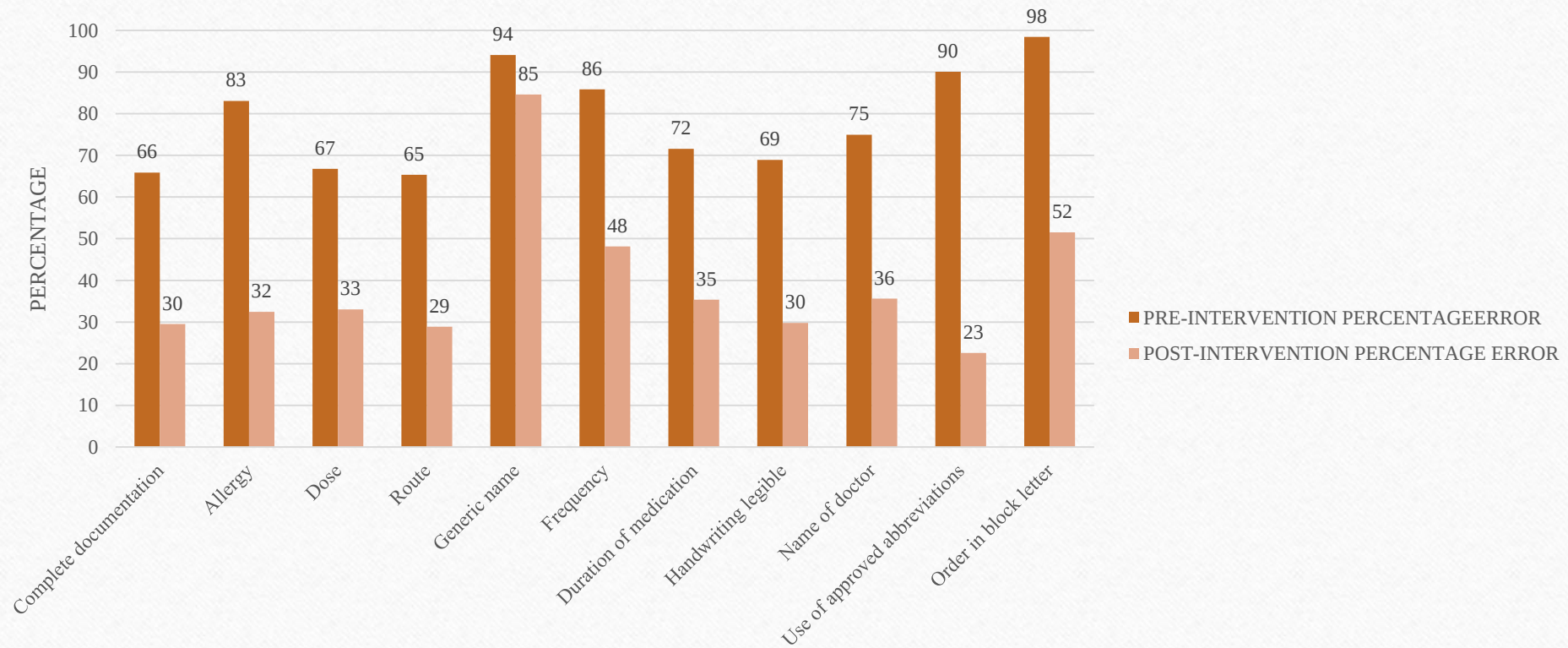
DATA ANALYSIS

Analysis was done using Microsoft excel

COMPARISON OF NON COMPLIANCE BEFORE AND AFTER INTERVENTION IN IPD



COMPARISON OF NON COMPLIANCE BEFORE AND AFTER INTERVENTION IN OPD



Z TEST FOR IPD (at 0.05 significance level z value =+-1.96)

PARAMETER S	p1	p2	n1	n2	p0	z test	Null hypothesis	Inference
Complete documentation	0.76673	0.29693	0.53183	0.00217	0.04662	10.0777	REJECTED	Intervention has made a statistical significant difference
Allergy	0.67143	0.26143	0.46643	0.00191	0.04366	9.39131	REJECTED	Intervention has made a statistical significant difference
Dose	0.63383	0.22383	0.42883	0.00175	0.04186	9.79437	REJECTED	Intervention has made a statistical significant difference
Route	0.6286	0.2186	0.4236	0.00173	0.0416	9.85469	REJECTED	Intervention has made a statistical significant difference

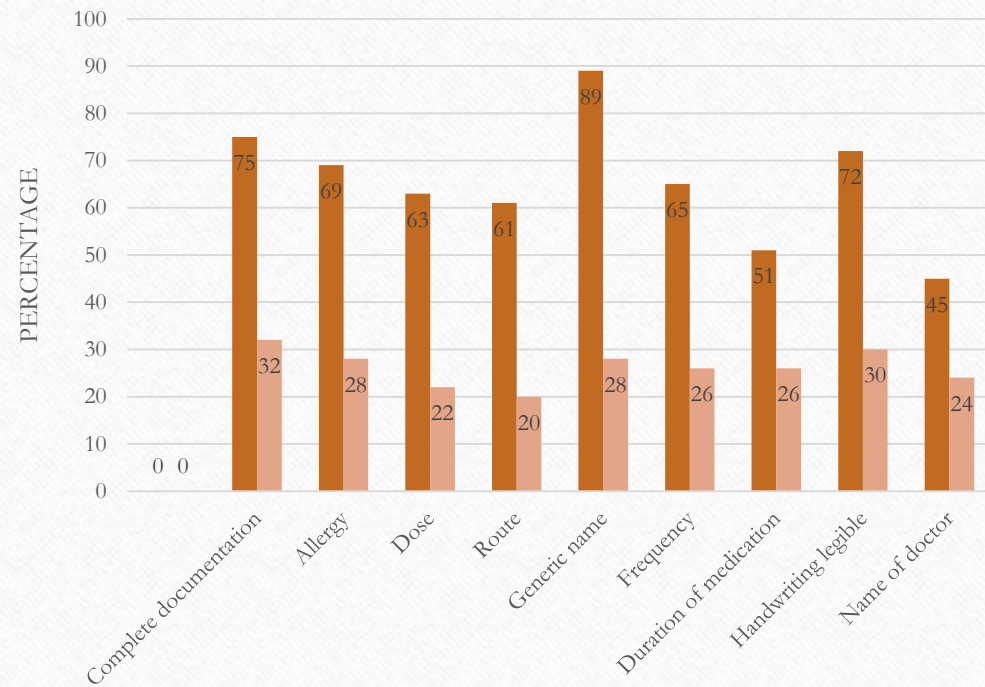
PARAMETERS	p1	p2	n1	n2	p0	z test	Null hypothesis	Inference
Generic name	0.89833	0.79347	0.8459	0.00346	0.05879	1.78367	ACCEPTED	Intervention has not made a significant difference
Frequency	0.64293	0.2645	0.45372	0.00185	0.04306	8.78889	REJECTED	Intervention has made a statistical significant difference
Handwriting legible	0.6995	0.27887	0.48918	0.002	0.04471	9.40817	REJECTED	Intervention has made a statistical significant difference
Name of doctor	0.53397	0.24063	0.3873	0.00158	0.03978	7.37352	REJECTED	Intervention has made a statistical significant difference
Use of approved abbreviations	0.85923	0.30653	0.58288	0.00238	0.0488	11.3249	REJECTED	Intervention has made a statistical significant difference
Order in block letter	0.91197	0.27097	0.59147	0.00242	0.04916	13.0386	REJECTED	Intervention has made a statistical significant difference

Z TEST FOR OPD (at 0.05 significance level z value =+/-1.96)

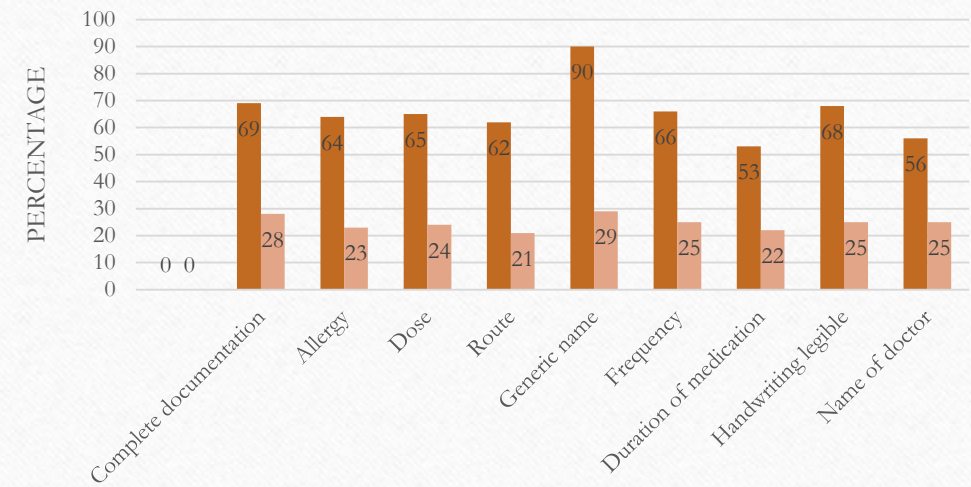
PARAMETERS	p1	p2	n1	n2	p0	z test	Null Hypothesis	Inference
Complete documentation	0.66	0.29513	0.4769	0.00195	0.04415	8.23467	REJECTED	Intervention has made a statistical significant difference
Allergy	0.83	0.32427	0.5776	0.00236	0.04858	10.4286	REJECTED	Intervention has made a statistical significant difference
Dose	0.67	0.3306	0.49907	0.00204	0.04516	7.46071	REJECTED	Intervention has made a statistical significant difference
Route	0.65	0.2888	0.4712	0.00193	0.04388	8.31319	REJECTED	Intervention has made a statistical significant difference
Generic name	0.94	0.8464	0.89367	0.00365	0.06043	1.56427	ACCEPTED	Intervention has not made a significant difference

Parameter	p1	p2	n1	n2	p0	z	Null Hypothesis	Inference
Frequency	0.86	0.48153	0.67017	0.00274	0.05233	7.20896	REJECTED	Intervention has made a statistical significant difference
Duration of medication	0.72	0.3534	0.53453	0.00218	0.04674	7.75098	REJECTED	Intervention has made a statistical significant difference
Handwriting legible	0.69	0.29767	0.49337	0.00202	0.0449	8.71668	REJECTED	Intervention has made a statistical significant difference
Name and registration number of doctor	0.75	0.35593	0.5529	0.00226	0.04753	8.28733	REJECTED	Intervention has made a statistical significant difference
Use of approved abbreviations	0.9	0.22547	0.56303	0.0023	0.04797	14.0747	REJECTED	Intervention has made a statistical significant difference
Order in block letter	0.98	0.51553	0.74987	0.00306	0.05536	8.46618	REJECTED	Intervention has made a statistical significant difference

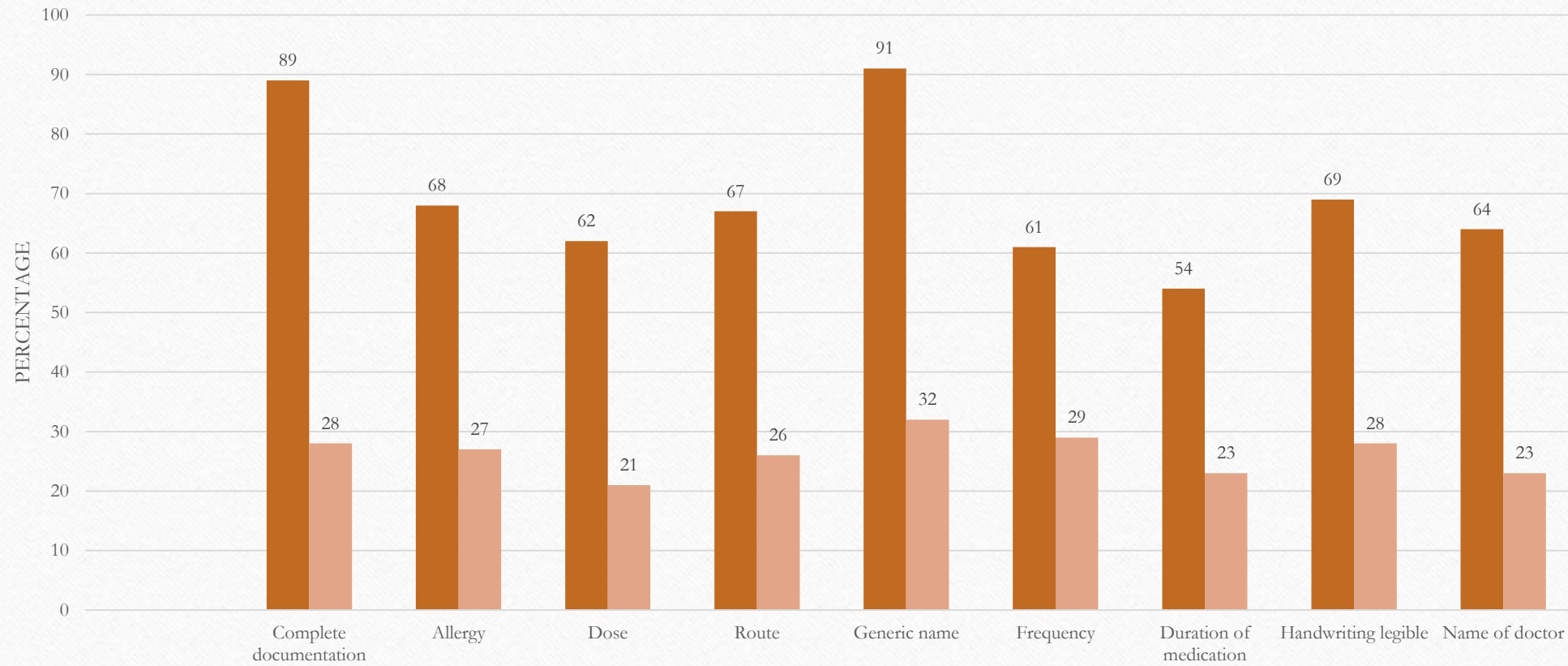
COMPARISON PERCENTAGE OF NON COMPLIANCE IN MALE WARD



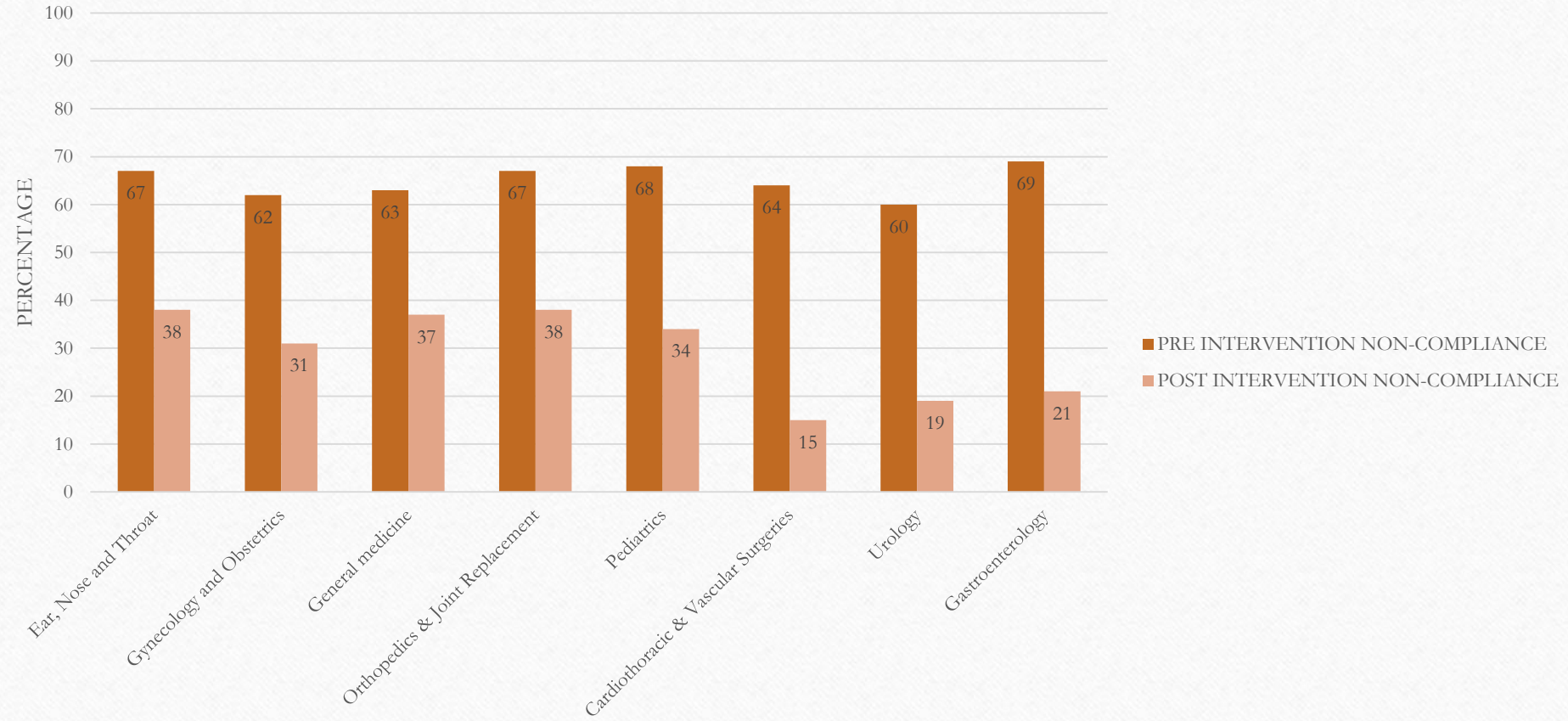
COMPARISON PERCENTAGE OF NON COMPLIANCE IN FEMALE WARD



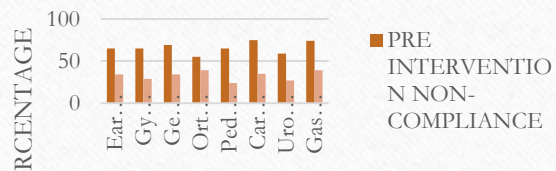
COMPARISON OF PERCENTAGE OF NON-COMPLIANCE IN PRIVATE WARD



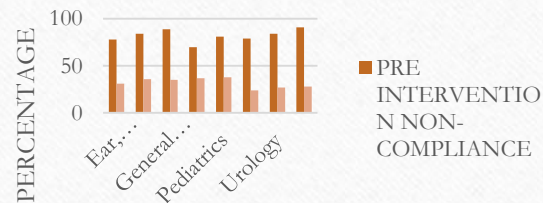
COMPARISION OF PERCENTAGE OF NON-COMPLIANCE FOR COMPLETE DOCUMENTATION



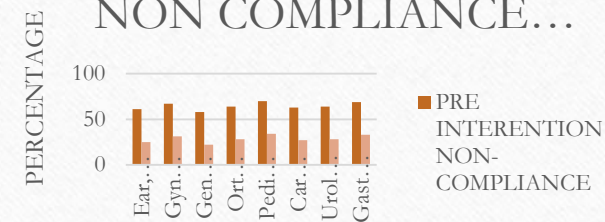
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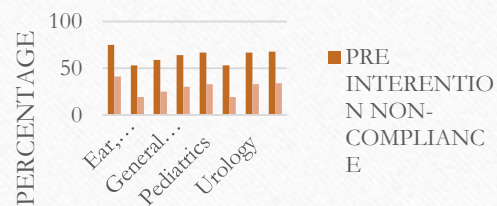
COMPARISION OF
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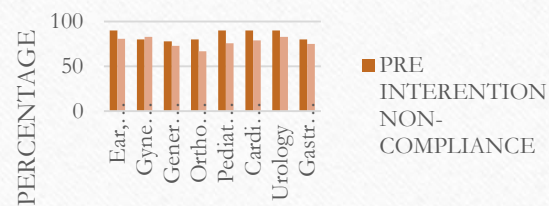
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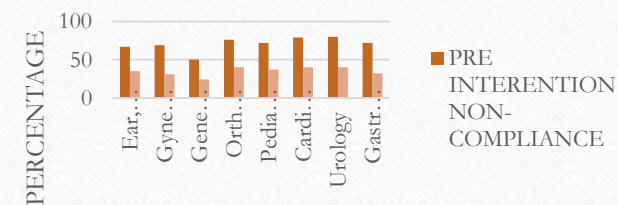
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PERCENTAGE OF NON
COMPLIANCE FOR
ILLEGIBILITY



RECOMENDATIONS

- Regular meeting with Medical Director should be conducted
- Doctors should be sensitized continuously to avoid medication error.
- Nurses should be trained to report more of medication error.
- Nurses should be sensitized continuously to complete the documentation
- Regular audits of medication error should be done.

CONCLUSION

- The study shows that the occurrence of medication error occur at each phase specially at prescribing stage.
- It also shows that, continuous sensitization of prescribers and nurses to reduce medication error has significant effect on reduction of medication error.
- Therefore proper policy and training for review of medication error should be done.

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My dreams were not possible
without your guidance and training
You are the worthy of all the credit
for all the success I am gaining

Thank You